

Knowledge management: Does the organizational culture matter?

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Abstract

Individuals and organizations have begun to appreciate the increasingly important role of knowledge in the present competitive environment. For years organizations have coded, stored, and transmitted knowledge. However, the current advancement of information technology has made the tasks much easier to accomplish. Through information technology, the task of capturing, storing, and sharing the organizational knowledge can be done more systematically and efficiently. However, we believe that the utilization of information technology alone in the knowledge management does not guarantee its success. The author argues that the success of knowledge management, in particular the creation and sharing of tacit knowledge is also influenced by organizational culture. It is hypothesized that certain dimensions of organizational culture encourage the creation and sharing of tacit knowledge. In this paper, the author discusses knowledge, knowledge management, knowledge management system, knowledge sharing and creation, and national and organizational culture. Finally, the author provides four propositions and suggest an empirical test for them.

Introduction

Individuals and organizations have begun to appreciate the increasingly important role of knowledge in the present competitive environment. Organizations have now realized that knowledge can be used as a competitive weapon. They have recognized that their success hinges from the quality of knowledge assets they possess and the successful exploitation of them (Wiig, 1997). The current emphasis on knowledge as a source of competitive advantage as we are experiencing now is probably a result of economic, industrial, and cultural developments that have taken place in the last few decades.

Many researchers have suggested knowledge as a source of sustained competitive advantage. Knowledge is difficult to imitate since it is closely embedded in the entity such as in organizational culture, policies, systems, and employees. The thoughts of knowledge as assets and can be capitalized for organizational competitive advantage should press all organizations to institute appropriate knowledge management systems. However, organizations should understand that knowledge is difficult and complex to manage. Therefore, although knowledge is so valuable for organizational competitive advantage, organizations should recognize the needs to institute a proper system to manage it properly.

Organizations have several reasons in adopting knowledge management initiative. In a survey by IDC (idc.com), readers of KMWorld were asked to identify the key business reasons that drive them to adopt a knowledge management solution. The six top reasons were to enhance internal collaboration, to capture and share best practice, to provide e-learning for customer relationship management, to provide a project workspace, and for competitive intelligence (McDonough and Rahal, 2002).

According to Alavi and Leidner (1999) the concept of knowledge management is not new. For years organizations have coded, stored, and transmitted knowledge. However, the present advancement of information technology has made the tasks a lot easier to accomplish. Through information technology, the task of capturing, storing, and sharing the organizational knowledge can be done more systematically and efficiently. Information technology is an excellent technology that is currently available for organizations to support their knowledge management efforts. IT-based systems not only support the knowledge management process but also enhance the organizational processes of knowledge creation, storage/retrieval, transfer, and application (Alavi and Leidner, 2001).

However, utilization of information technology alone does not guarantee the success of knowledge management in an organization. In this paper, the author likes to argue that the success of knowledge management, in particular the creation and sharing of tacit knowledge is influenced by organizational culture. The author believes that the success of knowledge management is affected by the willingness among individuals to share knowledge, and hypothesizes that certain dimensions of organizational culture encourage the willingness among individuals to share tacit knowledge. In turn, the willingness to share knowledge promotes further creation of knowledge.

This article attempts to discuss the influence of organizational culture on knowledge management in particular on tacit knowledge creation and sharing. Nonaka's (1994) knowledge creation model is being applied in two of the propositions and O'Reilly's *et al.* (1991) organizational culture instrument is being suggested for the empirical test. The paper will be organized as follows. First, knowledge and knowledge management are discussed. These will be followed by a discussion on national and organizational culture. Finally, four propositions are proposed and empirical test is suggested.

This article intends to build a research model and suggests an empirical test on the topic i.e., the influence of organizational culture on knowledge management. It is considered to be an initial attempt to link organizational culture to knowledge management. It is hoped that it will spark more research related to the topic as suggested by Alavi and Leidner (2001) in their paper discussing future research in knowledge management. There are many interdependent factors that affect the success of knowledge management and organizational culture is one of them. By researching and studying on the topic, we have at least cover part of the spectrums of knowledge management issues.

Knowledge

The terms information and knowledge are often used interchangeably. Dretske (1981:44). offers some useful definitions that show distinction between information and knowledge. According to him, "information is that commodity capable of yielding

knowledge, and what information a signal carries is what we can learn from it. Knowledge is identified with information-produced (or sustained) belief, but the information a person receives is relative to what he or she already knows about the possibilities at the source (p. 86).” Therefore, information is a flow of messages, while knowledge is created and organized by the very flow of information, anchored on the commitment and beliefs of its holder (Nonaka, 1994).

Alavi and Leidner (2001) suggest that information becomes knowledge once it is processed in the mind of individuals and knowledge becomes information once it is presented in the form of text, graphics, words or other symbolic forms. They argue that the implication of this view of knowledge is that individuals must share a certain knowledge base in order for them to arrive to the same understanding of information. To relate this to the information systems, the systems that are designed to support knowledge management in organizations must be geared toward enabling users to assign meaning to information and to capture some of their knowledge in information.

Knowledge can take several forms. Drawing on the work of Polanyi (1966), Nonaka (1994) suggested two types of knowledge in organizations. The two types of knowledge are explicit knowledge and tacit knowledge. Explicit knowledge refers to codified knowledge that can be transmitted and communicated in formal, systematic language. They are typically well documented and accessible (Gupta *et al.*, 2000). An example is a work manual, which contains knowledge on the appropriate procedures to perform a task. Given the nature of the knowledge, the explicit knowledge can be captured and recorded and later to be accessed by others.

On the other hand, tacit knowledge is hard to formalize and communicate. It is rooted in human mind and comprised of cognitive and technical elements (Nonaka, 1994). Cognitive elements refer to an individual’s mental models that are used to form working models of the world. The working models consisting of schemata, paradigm, beliefs, and viewpoints are used to help individuals to perceive and define the world. By contrast, the technical elements consist of concrete know-how, crafts, and skills that apply to specific context.

Knowledge management

Knowledge management can be defined as an effort to capture explicit factual information and the tacit information and knowledge that exist in an organization in order to advance the organization’s objective (Davenport and Prusak, 1998). Most organizations have a vast reservoir of explicit and tacit knowledge. Given the nature of explicit knowledge, most organizations might face fewer problems to capture them. However, since tacit knowledge, which resides in the minds of employees is more difficult to capture, an organization needs to institute a more effective knowledge management system. The challenges are to design a system that can convert tacit knowledge into explicit knowledge and to codify, capture, store, and transmit the explicit knowledge to those who need them.

Wiig (1997) provides four areas of emphasis in knowledge management: governance functions, staff functions, operational functions, and realize the value of knowledge. The governance function refers to top-down monitoring and facilitation of knowledge-related activities such as surveying and mapping the knowledge landscape, overseeing

knowledge asset management, and managing intellectual assets. The staff functions involve activities that create and maintain the knowledge infrastructure. These include instituting enterprise-wide lessons-learn program, knowledge inventories, and comprehensive multi-path knowledge transfer development capability. The operations functions refer to activities to create, renew, build, and organize knowledge assets. The activities include discover and innovate constantly, educate and training, maintain knowledge bases, automate knowledge transfer, transform and embed knowledge. And finally, the knowledge management focus is to leverage or use knowledge assets to realize their value such as sharing knowledge throughout enterprise, collaborating to pool appropriate knowledge, adopting best practices and sell products with high knowledge content.

Bukowitz and Williams (1999) provide knowledge management process framework based on two streams of activity that occur in organizations: day-to-day use of knowledge to respond to demands or opportunities from the marketplace (tactical level) and the long-range process of matching organizational knowledge assets to strategic requirements (strategic level). The framework indicates how organizations generate, maintain and deploy knowledge-based assets to create value in order for them to compete successfully in the marketplace (see Figure 1).

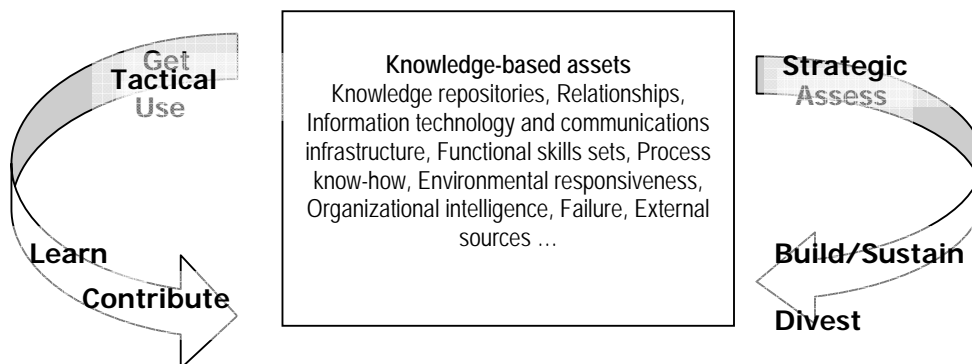


Figure 1: Knowledge management process framework
Adapted from Bukowitz and Williams (1999)

In organizations, employees perform four important things with the information. They get, use, learn and contribute (Bukowitz and Williams, 1999). The employees gather relevant information that they need for their daily work; they turn the information into knowledge and use the knowledge to create value; they learn from what they have created; and, hopefully, they feed this new knowledge back into the systems for others to use as they tackle problems of their own. Each of the steps requires the participation of everyone in the organization and need some kinds of support. Information technology can be an excellent support to make the four steps run smoothly. In addition, organizations might also want to consider incentives to encourage the process.

In the strategic level, organizations need to perform a continual assessment of existing knowledge assets and to compare those assets with future needs. They need to map current knowledge-based assets against future knowledge needs. They need to build knowledge through relationships with employees, suppliers, customers and competitors. And lastly, they should divest some of their knowledge-based assets if the assets are not directly contributing to their competitive advantage (Bukowitz and Williams, 1999).

Knowledge management system

Knowledge management systems (KMS) refer to a class of information systems that are applied to manage organizational knowledge (Alavi and Leidner, 2001). The systems focus on creating, gathering, organizing, and disseminating an organization's knowledge. Knowledge management systems, which take advantage of information technology, can range from a simple database to a more elaborate system that include customized reports and interconnected expert knowledge flows and communications (McInerney and LeFevre, 2000).

Alavi (2000) identifies two underlying models for knowledge management system: the repository model and the network model. The repository model aims at creating and maintaining stocks of explicit knowledge while the network model aims at using information and communication technologies to support the flow of knowledge in organization. Information technologies such as relational database, document management systems, intranet, and Internet are some of vital technologies for the development of organizational knowledge repository systems. Alavi (2000) also notes that organizations can build their knowledge repositories from internal and external data. Examples of internal knowledge are memos, manuals, internal best practices, and internal reports. Examples of external knowledge are competitive intelligence, industry trends, customer knowledge and trade journal.

While the repository model assumes knowledge is transferred among individuals through repository system, the network model assumes knowledge remains with the individual and is transferred mainly through person-to-person contacts (Alavi, 2000). In this model, organizations develop a knowledge map (or corporate "yellow pages"). The corporate yellow pages allow a knowledge seeker to locate the experts in the organization. In addition, the system enhances social interactions and direct communication among them.

Information technologies play major roles in supporting both models discussed above. Some of information technologies that lend support for knowledge management system are databases, expert systems, decision support and model-bases, groupware, and Internet applications. These technologies support the system in various ways. For instances, data mining allows decision makers in an organization to find pattern in the data to assist them to make effective decisions. Data warehousing can be used to support a variety of analyses and queries performed by middle and high-level decision makers. E-mail and electronic bulletin boards provide knowledge creation support in terms of enhancing the distribution and sharing of the explicit knowledge. Internet provides an opportunity for an organization to capture external knowledge. The increasing use of electronic group collaboration tools to support teamwork indirectly eases the tasks to capture, store and reuse organizational knowledge.

Knowledge creation and sharing

Nonaka (1994) proposes a generic model of organizational knowledge creation that consists of four major processes as shown in Figure 2 below.

Socialization (Tacit knowledge to Tacit Knowledge)	Externalization (Tacit Knowledge to Explicit Knowledge)
Internalization (Explicit Knowledge to Tacit Knowledge)	Combination (Explicit Knowledge to Explicit Knowledge)

Figure 2: Modes of the knowledge creation

Adapted from Nonaka (1994)

Socialization refers to a process of sharing experiences where tacit knowledge is transferred from one person to another (Nonaka, 1994). In the socialization process, one acquires the tacit knowledge from another through observation, imitation and practice. The process is very useful in an organization as it allows individuals to share the tacit knowledge among them. In addition, the socialization process might spark new ideas and allow creation of new tacit knowledge.

Externalization is a process of articulating tacit knowledge into explicit concepts (Nonaka, 1994). An individual might take several approaches in understanding the tacit knowledge and converting them to the explicit concepts. The concepts can be created and elaborated through deduction, induction, analogy, and metaphor. We can describe this process in a simple term such as turning the tacit knowledge (e.g., experience from workshops) into explicit form (e.g., written report).

Combination is a process of systemizing concepts into a knowledge system (Nonaka, 1994). In this process the explicit knowledge gained through conversations, meetings, or documents are exchanged and combined. The process involves sorting, adding, combining and categorizing the explicit knowledge. Formal education and training are two important factors that enhance an individual's ability to combine the knowledge (Nonaka, 1994). Finally, internalization refers to a process of embodying explicit knowledge into tacit knowledge. It is related to "learning by doing." The process occurs when the experiences an individual gains through socialization, externalization, and combination are internalized into his or her tacit knowledge bases.

The socialization is a vital process in an organizational knowledge creation. In order for the organizational knowledge creation to take place, the tacit knowledge accumulated at the individual level needs to be socialized with other organization members (Nonaka and Takeuchi, 1995). This can be done through oral communication, written communication or illustrations and diagrams. Documented explicit knowledge will assist individuals to internalize what they have experienced and also assists others to re-experience their events. As previously mentioned,

information technology will most likely play major roles in the documentation and distribution process.

National culture

In a classic study of culture, Hofstede (1980) identified four dimensions of cultures: Individualism/Collectivism, Power Distance, Uncertainty Avoidance and Masculinity-Femininity. Subsequently he adds another dimension: Long-term and Short-term Orientation or Confucian Dynamism.

The individualism/collectivism refers to the strength of the relation between an individual and other individuals in the society. According to Hofstede (1980), individualist society expects that everyone to look after himself or herself and their immediate families. On the other hand, collectivist society shows more integrated and cohesive groups. In the collectivist society, people are expected to look after the interest of the larger community.

The power distance concerns how a culture deals with hierarchical power relationships and in particular the unequal distribution of power. According to Hofstede (1980), members of high power distance cultures are more readily to accept interpersonal inequality as compared to members of a low power distance culture. Uncertainty avoidance refers to how cultures seek to deal with the fact that the future is not perfectly predictable. In weak uncertainty avoidance cultures, people are more easygoing and flexible regarding different views. In strong uncertainty avoidance cultures, the cultures provide clear rules as to how one should behave.

The masculinity-femininity dimension describes the division of roles between the sexes within a society (Hofstede, 1980). In masculine cultures, the societies stress assertiveness, performance, success and competition. In feminine cultures, the societies stress values such as service, care for the weak and solidarity. Finally, the long-term-short-term orientation describes the degree the society embraces long-term devotion to traditional, forward thinking values. Cultures high on the long-term orientation focus on the future and prescribe to the values of long-term commitments and respect for tradition. Short-term orientations, on the other hand, do not reinforce the concept of long-term and traditional orientation.

Organizational culture

Organizational culture can be defined as a social force that controls patterns or organizational behavior of members in an organization (Ott, 1989). It functions by shaping members' cognitions and perceptions of meanings and realities, and identifying who belongs and who does not in the organization. Deshpande and Webster (1989:4) defined organizational culture as a "pattern of shared values and beliefs that help individuals understand organizational functioning and thus provide them with the norms for behavior in the organization".

Organizational culture can be conceptualized into three levels: artifacts, values and beliefs, and basic underlying assumptions. Artifacts include material and nonmaterial objects and patterns that reflect an organization's technology, beliefs, values,

assumptions, and ways of doing things (Ott 1989). Physical layouts such as dividers or walls between offices and open or closed doors are examples of material objects. Organizational language, jargons, stories, myths, and metaphors are examples of nonmaterial objects or patterned behavior.

O'Reilly *et al.* (1991) in their study on person-organization fit identify seven dimensions of organizational cultures: Respect for People, Team Orientation, Attention to Detail, Stability, Innovation, Outcome Orientation, and Aggressiveness. The dimensions are derived from the instrument (Organizational Culture Profile - OCP), which comprises of 54 value statements.

While organizational culture has been defined in many ways in the literature, most definitions involve various combinations of assumptions, values, norms, beliefs and ways of thinking and acting that are shared by organizational members. The significance of organizational culture is that it directs members in an organization to behave in certain manners. Organizational culture can act like an invisible hand. As the values are implanted deeply in members' beliefs, their behaviors are derived from the social pressure not from formal procedures and policies. The use of procedures and policies to direct their behaviors is kept at a minimum level or probably none to existence. We might say that the organizational culture can substitute these formal control mechanisms. To relate this to knowledge management, the author feels certain dimensions of organizational culture can habitually encourage knowledge creation and sharing in an organization. Together with a proper knowledge management system, an organization's knowledge management efforts will be more successful.

A supportive culture is essential to ensure knowledge-sharing processes success (Liebowitz and Chen, 2001). There are many ways organization can inculcate a knowledge-sharing culture. A study was conducted on companies that were known to have a corporate culture that support knowledge sharing by the American Productivity and Quality Center (APQC). They found six key areas that facilitate and nurture environments conducive to knowledge-sharing: (1) the relationship between knowledge sharing and business strategy, (2) the role of human networks, (3) the role of leaders and managers, (4) the fit with the overall culture, (5) the relationship between knowledge-sharing and daily work, and (6) the institutionalizing of learning disciplines (Liebowitz and Chen, 2001).

In another study conducted at Queen's University in Ontario found that the immediate supervisor plays a significant role in instilling a knowledge-sharing culture. The study found that individuals are far more likely to view knowledge sharing as important if their immediate supervisor advocates knowledge-sharing behavior (Seeley, 2002). Newman (2000) suggests conditions that need to exist in an organization in order for knowledge-sharing to occur. The conditions are an individual that provides the knowledge should feel recognized and respected; he or she is credited in the future, and both the knowledge seeker and provider know the knowledge has real potential value if exploited.

Propositions

The socialization process is probably one of the most important components in knowledge creation and sharing. It allows the tacit knowledge accumulated at the individual level to be transferred to other organization members (Nonaka and Takeuchi, 1995). The process allows employees to communicate and share their knowledge. It is also a very important process especially to younger employees, as they need to learn something from older employees. Since the tacit knowledge is very difficult to codify, employees will understand better by working together. In addition, the socialization process might create new knowledge. This occurs as knowledge sharing among the employees might lead to a new way of solving existing problems.

The author believes the socialization process can be amplified through teamwork. As the way works are done may vary in organizations, the amount of tacit knowledge transferred to other members will also vary. Organizations that encourage and value teamwork will most likely to have higher tacit knowledge sharing activities compare to those organizations in which works are done individually. In teamwork orientation organizations, employees carried out works in groups. In this setting, they will have regular contact, working together or sharing ideas and experiences. O'Reilly's *et al.* study (1991) suggests that team oriented organizations are those that are emphasizing team oriented, collaboration, and people oriented in their organizational culture profile. Based on O'Reilly's *et al.* (1991) seven dimensions of organizational culture, the first and second propositions are suggested:

Proposition 1: Tacit knowledge creation is higher in an organization that scores high in team orientation dimension.

Proposition 2: Tacit knowledge sharing is higher in an organization that scores high in team orientation dimension.

3M is probably the most cited firm as innovative firm. The firm's culture encourages innovativeness among its employees. The culture is nurtured through a long-term commitment from top management, the recruitment and retention of the right people and a strong support and recognition program (Brand, 1998). Successful implementation of these strategies has resulted in a strong innovative culture that encourages 3M's employees to take risk and experimenting with new things. In fact, the company allows employees to work 15% of their time on project of their interest.

According to Nonaka (1994), organizations cannot create knowledge without individuals but the organizations can support and provide a proper context for individuals to create knowledge. Tacit knowledge creation and sharing will flourish in an organization that has innovative culture. Probably, two most important elements of innovative culture are risk taking and high tolerance of mistakes. The role of high tolerance of mistakes is to reinforce the risk taking culture. Without high tolerance of mistakes, the innovative culture will be more difficult to survive since the employees will try to avoid experimenting with a new thing in order to shun from punishment.

The risk taking culture encourages employees to experiment with new things that will result in new knowledge. In addition, in the process of experimenting with new phenomenon, the employees might be forced to engage in the knowledge sharing activities such as searching for the existing knowledge, which might reside in others

mind and cooperating with others to come up with a noble solution. Overall, the whole activity will encourage tacit knowledge creation and sharing among the employees.

We should expect an organization that is innovative to be more loosely structured. The organization is more likely to adopt an organic structure, which emphasizes on lateral relations between organization's members and groups. In this type of environment, there is a higher participation of lower-level individuals in decision-making. Rules and regulations are more flexible and roles and relationships are less formally defined (Burns and Stalker, 1961). The organization's environment improves employees' attitudes and encourages greater individual responsibility and initiative from them. The employees are more empowered to do their jobs and are more confident and creative. Higher participation and creativity will enhance information creation and sharing in an organization. In O'Reilly's *et al.* study (1991), innovative organizations are those that are score high in innovation, opportunities, experimenting, and risk taking and low in careful and rule oriented in their organizational culture profile. Based on O'Reilly's *et al.* (1991) seven dimensions of organizational culture, the third and fourth propositions are offered:

- Proposition 3: Tacit knowledge creation is higher in an organization that scores high in innovation dimension.
- Proposition 4: Tacit knowledge sharing is higher in an organization that scores high in innovation dimension.

The four propositions can be depicted in a research model as shown in Figure 3. In the model, the team orientation and innovation are the independent variables while tacit knowledge creation and sharing are the dependent variables. This paper hypothesizes a positive relationship between the independent and dependent variables.

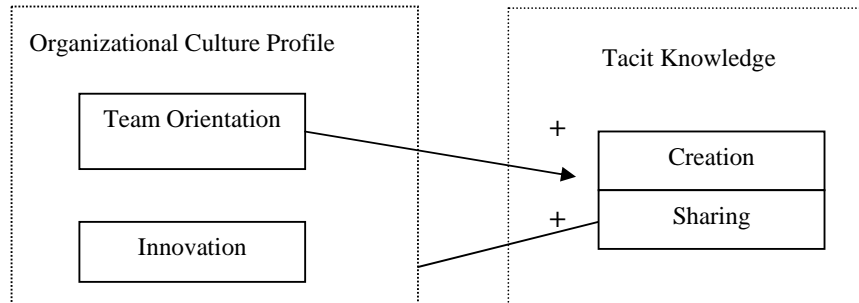


Figure 3: Proposed research model

Proposed empirical test

A survey method is suggested to test the propositions. The survey instrument should capture two pieces of information: the cultural profile of an organization and the perceptual evaluation of knowledge creation and sharing. The organizational cultural profile can be measured by the Organizational Culture Profile - OCP validated instrument developed by O'Reilly's *et al.* (1991). The instrument uses 54 value

statements that break up organizational cultures into seven dimensions: Respect for People, Team Orientation, Attention to Detail, Stability, Innovation, Outcome Orientation, and Aggressiveness. On the evaluation of tacit knowledge creation and sharing, the questions in the questionnaire should be constructed that evaluate management's perception of knowledge creation and sharing activities in the organization.

The population of the study will be companies that have implemented knowledge management. Top management or employees could be the appropriate respondents. From the questionnaire, the organizational cultural profile and level of knowledge creation and sharing can be deduced. A series of regressions can then be run between the independent variables (team orientation and innovation) and dependent variables (level of knowledge creation and sharing) in order to test the hypotheses.

Conclusion

Managing the creation and sharing organizational knowledge has been a challenge to organizations for many decades. They might have adopted various strategies in meeting the challenge, which may range from adopting new technologies to altering organizational structure. This article attempts to highlight the importance of organizational culture in knowledge management. It postulates that a right and proper culture will further amplify the success of knowledge management in the organizations.

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